UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte RUSSELL E. HENNING

Appeal No. 2005-2675
Application No. 09/751,129

ON BRIEF

Before KRASS, JERRY SMITH and DIXON, Administrative Patent Judges.
JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-28 and 30-33, which constitute all the claims pending in this application.

The disclosed invention pertains to a method and apparatus for processing frames of video in a video bitstream. More particularly, a first type of frame in the bitstream is processed using a first error resilience technique while a second type of frame in the bitstream is processed using a second error resilience

technique, wherein the first and second error resilience techniques are different.

Representative claims 1 and 10 are reproduced as follows:

1. An apparatus, comprising:

a first block to process a first type of frame in a video bitstream using a first error resilience technique; and

a second block to process a second type of frame in the video bitstream using a second error resilience technique, wherein the first error resilience technique is different from the second error resilience technique, the second error resilience technique to replace a bit pattern for the second type of frame with a shorter bit pattern.

10. An article comprising one or more machine-readable storage media containing instructions that when executed enables a processor to:

receive a video stream having at least a first type of frame and a second type of frame; and

process the first type of frame using a first error resilience technique and the second type of frame using a second error resilience technique, wherein the first error resilience technique comprises applying resynchronization markers to the video stream at a selected interval and the second error resilience technique comprises applying resynchronization markers at an interval different from the selected interval such that the second error resilience technique replaces a bit pattern for the second type of frame with a bit pattern of shorter length.

The examiner relies on the following references:

Sun et al. (Sun)	5,455,629	Oct. 03, 1995
Shiomoto	6,289,485	Sep. 11, 2001 (filed Oct. 22, 1998)
Webb	6,552,673	Apr. 22, 2003 (effectively filed Feb. 25, 2000)

Claims 1-28 and 30-33 stand rejected under 35 U.S.C. § 103(a). As evidence of obviousness the examiner offers Sun in view of Shiomoto with respect to claims 1, 2, 6-8, 19-23, 25-28 and 30-33, and Webb is added to this combination with respect to claims 3-5, 9-18 and 24.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1-9,

19-28 and 30-33. We reach the opposite conclusion with respect to claims 10-18. Accordingly, we affirm-in-part.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed.

Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

We consider first the rejection of claims 1, 2, 6-8, 19-23, 25-28 and 30-33 based on Sun and Shiomoto. The examiner has indicated how these claims are deemed to be obvious over the teachings of Sun and Shiomoto [answer, pages 3-8]. With respect to independent claim 1, appellant argues that there is no teaching of a second error resilience technique which replaces a bit pattern for the second type of frame with a shorter length code [brief, page 12]. The examiner responds that Shiomoto teaches the use of different parity bit additions based on whether the data is base layer coded data or reinforced layer coded data. Thus, the

examiner asserts that the parity bit patterns added for the base layer would be shorter than the parity bit additions added for the reinforced layer [answer, pages 14-15]. Appellant responds that the parity bit additions of Shiomoto add data to the information rather than reduce any bit patterns, and therefore, teach away from the claimed invention. Appellant also argues that Shiomoto fails to handle different frames differently as claimed. Finally, appellant argues that there is no basis for combining the teachings of Sun and Shiomoto [reply brief, pages 1-2].

We will sustain the examiner's rejection of claim 1. Although we agree with appellant that the parity bit additions of Shiomoto do not replace bit patterns for a frame of data with shorter bit patterns as claimed, we find that Sun by itself teaches the invention of claim 1. Sun describes a system for concealing errors in video data by substituting block data for the macroblocks in which the error occurred. For a first type of frame (an I frame), Sun teaches substituting data with enough information for the decompressor to perform a decoding function and to preclude the decompressor from entering an inoperable state [column 10, lines 41-67]. It would be apparent to the artisan that this substitution replaces the expected data with a shorter version of the data which is sufficient to keep the decoder operating. Although Sun teaches

that substitution data for P and B frames can be of similar form, Sun also teaches that other forms of substitution data may be used for P and B frames [column 11, lines 8-35]. Thus, Sun teaches the use of different error resilience techniques on I frames and P and B frames, and Sun also teaches that the substitute data is a shorter bit pattern for the I frames because it is just enough data to keep the decoder operating. We find this operation to meet the recitations of claim 1.

With respect to independent claim 19, appellant argues that the combination of Sun and Shiomoto fails to teach or suggest all the limitations of claim 19 [brief, page 12]. The examiner responds that Sun teaches the use of a supplied error map to copy substitute data from a second type of frame [answer, pages 15-16]. Appellant responds that Shiomoto fails to handle different frames differently as claimed [reply brief, pages 3-4]. We will sustain the examiner's rejection of claim 19. As noted above, Sun teaches different error concealment techniques for different types of frames of video data. The examiner relies on Sun for teaching the error concealment technique of copying data lost from a previous second type of frame. We agree with the examiner that Sun teaches this feature of claim 19. Specifically, Sun teaches that data lost due to error can be replaced by data from previous slices or

vertically adjacent macroblocks based on the frame type [column 8, line 33 to column 9, line 8].

With respect to independent claim 27, in addition to the arguments considered above with respect to claim 1, appellant argues that there is no teaching of determining a channel characteristic and using it for error resilience as recited in claim 27 [brief, page 13]. The examiner responds that Sun teaches the use of a channel characteristic in the form of channel synchronization [answer, page 16].

We will sustain the examiner's rejection of claim 27. As noted above, Sun teaches different error concealment techniques for different types of frames of video data. Sun also teaches that the error resilience technique is a function of whether the error occurred in the HP or LP channel. The determination of whether the HP or LP channel is involved is sufficient to meet the broad recitation of a channel characteristic as recited in claim 27.

In summary, we have sustained the examiner's rejection of claims 1, 19 and 27. Since appellant has not argued the separate patentability of the other claims subject to this rejection, we also sustain the rejection of claims 2, 6-8, 20-23, 25, 26, 28 and 30-33.

We now consider the rejection of claims 3-5, 9-18 and 24 based on Sun, Shiomoto and Webb. The examiner has indicated how these claims are deemed to be obvious over the teachings of Sun, Shiomoto and Webb [answer, pages 8-13]. With respect to claims 3-5, 9 and 24, appellant argues that Webb does not teach the use of a resynchronization marking block where different error resilience techniques for different types of frames are used [brief, page 13]. The examiner responds that Webb teaches error synchronization markers and that such markers would be different for the HP and LP data streams [answer, pages 16-17].

We will sustain the examiner's rejection of claims 3-5, 9 and 24. As noted above, Sun teaches different error concealment techniques for different types of frames of video data. We agree with the examiner that Webb teaches the use of resynchronization markers in the performance of error resilience. We also agree with the examiner that it would have been obvious to the artisan to broadly use resynchronization markers as taught by Webb as one of the error resilience techniques in Sun. Such operation would meet the recitations of claim 3.

With respect to claims 10-18, appellant argues that there is no teaching of the claimed resynchronization markers [brief, pages 13-14]. The examiner responds by pointing to teachings of

Sun and Shiomoto [answer, page 17]. Appellant responds that the examiner has not even attempted to show the use of resynchronization markers at different intervals for different resilience techniques as claimed. Appellant argues that the portions of Webb cited by the examiner fail to teach the claimed feature. Finally, appellant argues that the examiner's assertion that resynchronization markers would be different for HP and LP data streams is completely without support in the references [reply brief, page 3].

We will not sustain the examiner's rejection of claims 10-18 for essentially the reasons argued by appellant in the reply brief. We agree with appellant that the examiner has failed to provide evidence on this record that teaches applying resynchronization markers at different intervals as claimed. At best, the examiner has simply made an unsupported conclusion that the claimed invention would have been obvious to the artisan.

In summary, the examiner's rejections have been sustained with respect to claims 1-9, 19-28 and 30-33, but they have not been sustained with respect to claims 10-18. Therefore, the decision of the examiner rejecting claims 1-28 and 30-33 is affirmed-in-part.

AFFIRMED-IN-PART

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

ERROL A. KRASS
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) AND
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